Amendments to the Drawings:

The attached sheet of drawings includes a new sheet, Figure 3. Approval by the Examiner is respectfully requested.

Attachment: New Sheet Figure 3

REMARKS

Claims 1-42 are pending in the application. Claims 1-42 stand rejected. Claims 1-2, 6-7, 11, 13-16, 22-23, 27-28, 32, 34-37, and 42 have been amended. Claims 1-42 remain in the application.

The drawings were objected to under 37 CFR 1.83(a) as failing to show "a plurality of invisible layers" as described in the specification. A proposed Figure 3 has been submitted, in which a plurality of invisible layers are illustrated in the same manner as the single invisible layer of Figure 1. Support for Figure 3 is provided in the application as filed, notably Figure 1 and at page 7, lines 23-27. The specification has been amended to include a short description of Figure 3. The amended language is supported as above and at page 4, lines 3-4.

CLAIMS 1-2 and 22-23

Claims 1-2 and 22-23 stand rejected under 35 U.S.C. 102(e) as being anticipated by Koltai et al (US 6,104,812) (hereafter "Koltai"). The rejection stated:

> 'Re claims 1, 2, 22 and 23: Koltai et al discloses an apparatus and process for hiding a secondary image within a primary image of passport, licenses, photo LD's, etc. (fig. 18), wherein the primary image is visible to an un-aided eye while the secondary image is hidden/invisible from the un-aided eye, wherein the secondary image having additional information about the primary image (e.g., the primary image is a person's photograph, and the secondary image is the person's signature, the person's height or weight, etc.) (col. 13, lines 55-67). The primary image is divided into elements, lines, cells, pixels, dots, etc., which may be used as information carriers for encoding the secondary images/invisible data elements; each of the secondary images/invisible data elements is encoded in a corresponding and in registration with a respective pixel/cell/dot of the primary image/visible image and each of the secondary images/invisible data elements is being in the same physical pixel location as a respective image pixel of the primary/visible image (figs. 4-12; col. 6, line 60 through col. 10, line 35). Plurality of into plurality components/layers of the primary/visible image (e.g., cyan 1502C, magenta 1502M, etc.) producing a plurality of "invisible image

layers" and each of the "invisible image layers" can be read individually (col. 14, line 1 through col. 17, line 30).'

Claim 1 states:

> 1. An image bearing article, comprising:
>
> a) a support;
>
> b) at least one visible image layer recorded on the support, the visible image layer having a plurality of image pixels having image information; and
>
> c) an invisible layer recorded on the support, the invisible layer being over or under said visible image layer, the invisible layer having invisible data elements corresponding to each of said image pixels of said visible image layer, each of said invisible data elements being in registration with a respective one of the image pixels of the visible image layer, each of said invisible data elements having one of a plurality of values encoding additional information about the respective one of the image pixels of the visible image layer, each of said invisible data elements being individually readable to provide said additional information.

The changed language of Claim 1 is supported by the application as filed, notably at page 4, lines 25-32.

Claim 1 requires at least one visible image layer recorded on a support and an invisible layer recorded on the support, the invisible layer being over or under the visible image layer. The invisible layer has invisible data elements corresponding to and in registration with respective image pixels of the visible layer. Each of the invisible data elements has a value encoding additional information about the respective image pixel and is individually readable to provide that additional information. Koltai does not have a visible image layer and an invisible layer over or under the visible image layer. Koltai modifies a visible primary image to provide a secondary image within the primary image. (Koltai, abstract) The secondary image is a modification of parts of the primary image:

> "The hidden image process involves rasterizing, or dividing up into elements, such as dots, lines or pixels (elementary data holders), a primary or visible image. With a digital compensating procedure we

reform, distort, modify, etc. these elements in order to implement the secondary information, making the secondary image invisible to the unaided eye with respect to the primary image." (Koltai, col. 6, lines 61-67)

Claim 1 requires that each of the invisible data elements of the invisible layer has a value encoding additional information about a corresponding image pixel and that the invisible data elements are individually readable to provide that information. This provides advantages noted in the application:

> "Since the additional pixel-related information is physically stored in the same location on the medium as the pixels themselves and is not dependent on other pixels (as, for example, with run-length encoding), the information can be readily recovered under difficult circumstances. If, for example, a portion of the medium were damaged or destroyed by ripping, tearing, or defacing, the remainder of the information can be readily recovered with the pixels themselves. Moreover, the alignment of the hard-copy image and any readers will not be critical since the data information associated with each pixel is stored at the same physical pixel location."

Koltai does not disclose or suggest this feature nor recognize the problem of recovering secondary information from a medium that is partially damaged or destroyed.

Claims 2, 22, and 23 are supported and allowable on the same grounds.

CLAIMS 3-8, 12, 17-21, 24-33, and 38-42

Claims 6-8, 17, 19-21, 27-32, 38 and 40-42 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koltai in view of Wang et al (US 5,337,361) (hereafter "Wang"). Claims 3-5, 12, 18, 24-26, 33 and 39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koltai et al as modified by Wang et al as applied to claims 1 and 22 above, and further in view of Williams et al (US 6,610,386). The Office Action stated:

> "Re claims 6-8, 17, 19-21, 27-32, 38 and 40-42: Koltai has been discussed above and further discloses that the invisible can read by an optical reading device or an electronic decoder (col. 8, lines 17+), but is silent with respect to the visible image is a computer generated/photographic image; the invisible is detectable in the ultraviolet

region of the electromagnetic spectrum and the article contains a temporal sequence of images, respectively.

"Wang et al teaches (figs. 1A-1D; col. 3, line 50 through col. 5, line 38) an image bearing article, comprising: a support 16; a visible image 17, which can be a graphic/computer generated image or a photograph, recorded on the support 16 (fig. 1; col. 3, line 52+); and invisible information 18 recorded on the support 16, the invisible information 18 relating to and in registration with elements of the visible image 17; wherein the invisible information 18 is detectable in the ultraviolet region of the spectrum (col. 3, lines 67+); wherein the article contains a temporal sequence of images (col. 5, lines 35+).

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of Wang et al into the system as taught by Koltai et al in order to provide Koltai et al with an alternative means for encoding/decoding invisible data (i.e., ultraviolet, infrared, etc.), which would provide a more secure system wherein an authorized individual cannot read or decode the invisible information from the medium/article without the necessary equipment (i.e., ultraviolet, infrared), and therefore an obvious expedient.

The Office Action also stated:

"Re claims 3-5, 12, 18, 24-26, 33 and 39: Koltai et al/Wang et al have been discussed above but fails to teach or fairly suggest that the invisible information is recorded as a pattern of invisible ink/invisible dye; the invisible information is detectable in the infrared region of the spectrum.

"Williams et al teaches the invisible patterns on sheet 14 is recorded as a pattern of invisible ink/dye (fig. 3; col. 3, lines 45+) and the invisible information is absorbed in the IR or UV regions (col. 3, lines 58+).

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to use invisible ink/dye as taught by Williams et al to record the invisible information of Koltai et al/Wang et al in order to provide invisible information only absorb in the infrared or ultraviolet regions. Furthermore, the luminescent property of

the invisible ink/dye in the infrared or ultraviolet regions would enhance the reading quality, and thus producing a more accurate result/system." Claims 6-8, 17, 19-21, 27-32, 38 and 40-42 and 3-5, 12, 18, 24-26, 33 and 39 were amended, as necessary to track the language of respective independent claims and are allowable as depending from respective independent claims and as follows.

The cited references contradict the rejections. The rejections argues that requiring use of "necessary equipment (i.e., ultraviolet, infrared)" would provide a more secure system and argues for use of IR or UV invisible ink/dye. It is noted that the rejection itself argues that use of such techniques for reading invisible features is well-known. U.S. Patent No. 6,142,380 (Sansone et al., of record and not relied upon) teaches that fluorescent and phosphorescent inks are used with U.S. postage stamps and postage meters. Common availability and usage are contrary to the rejection's argument.

Koltai already requires use of "special equipment". Koltai states that the secondary information is invisible to the un-aided eye with respect to the primary image and:

> "For decoding the implemented information an adequate decoder device is necessary that is able to select the secondary information." (Koltai, col. 7, lines 1-3)
>
> "The decoding device may be, for example an optical filter, or an electronic decoder. The decoder may compensate for one or many encoding effects attributed to the image, such as magnification, reduction, reversal, and prismatic effects. The decoder may also optically filter the image using periodic and/or random filtering patterns based on the encoding method used to encode the image. The optical filtering of the image may also be based on one or many different geometric forms, such as circles, semi-circles, rectangles, triangles, etc.
>
> "The electronic decoder may be implemented in hardware, software or a combination thereof further providing programmable capability. The electronic decoder may also include electronic recognition to interpret the hidden information, such as bar-codes and digital data." (Koltai, col. 8, lines 7-31)

Koltai does not need Wang to teach the use of a special, complex decoder to read the secondary images.

Koltai also teaches against the use of fluorescent inks that add incremental cost:

> "To prevent unauthorized duplication or alteration of documents, frequently there are special indicia or a background pattern provided for sheet materials such as tickets, checks, currency, and the like. The indicia or background pattern is imposed upon the sheet material usually by some type of printing process such as offset printing, lithography, letterpress or other like mechanical systems, by a variety of photographic methods, by xeroprinting, and a host of other methods. The pattern or indicia may be produced with ordinary inks, from special inks which may be magnetic, fluorescent, or the like, from powders which may be baked on, from light sensitive materials such as silver salts or azo dyes, and the like. Most of these patterns placed on sheet materials depend upon complexity and resolution to avoid duplication. Consequently, they add an increment of cost to the sheet material without being fully effective in many instances in providing the desired protection from unauthorized duplication or alteration." (Koltai, col. 1, lines 17-34)

Koltai does not require the additional inks, since the secondary image is hidden within the primary image (Koltai, abstract). In view of the additional cost of the special inks taught by Koltai in the above quote, this also presents a motivation for one of skill in the art to not modify Koltai as described in the rejection.

The rejection of Claims 3-5, 12, 18, 24-26, 33 and 39 also argues that "the luminescent property of the invisible ink/dye in the infrared or ultraviolet regions would enhance the reading quality, and thus producing a more accurate result/system." The rejection is, in effect, arguing for an invisible primary image. This is contrary to Koltai, which provides a secondary image within a visible primary image. (Koltai, abstract) The secondary image contributes to the primary image, but is not visually separable. Koltai states:

> "The software method and apparatus of the present invention makes it possible to have a rasterized primary image, where the elements of the image (e.g. dots, pixels, etc.) are modified in order to contain the elements of the secondary image and, at the same time, distorted in order to

compensate for both the modifications and expected imperfections of the reproduction technology used. The resulting combined image appears to the unaided eye like the original primary image. However, since the component rasterized elements are formed in order to approach the coded pattern of the secondary image, a decoder will reveal the underlying secondary image. Due to the high printing resolution needed for such complex lines, attempts to copy the printed image by electromechanical means, or otherwise, are most often unsuccessful in reproducing the underlying secondary image." (Koltai, col. 4, lines 20-39; also see Figures 5-12 and related discussion)

CLAIMS 9-11

Claims 9-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koltai. The rejection stated:

"Re claims 9-11: Koltai et al discloses a system in which a user can select any desired primary/visible image and secondary/invisible image/information (figs. 17-18; col. 11, line 50 through col. 13, line 54), but is silent with respect to the invisible data elements are distance information, classification, and a difference, respectively, relating to a respective one of the image pixels."

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to encoded distance information, classification, and a difference, respectively, relating to a respective one of the image pixels into the secondary/invisible image/data elements of Kotai et al due to the fact that the encoding system/process can encode any desired information that is selected by the user, and therefore an obvious expedient."

The rejection is arguing a per se rule that the species of Claims 9-11 are obvious, because the genus "any desired information" is obvious. This is improper. (See MPEP 2144.08 (II))

"The fact that claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a prima facie case of obviousness" (*In re Baird*, 16 F.3rd, 380, 382, 29 USPQ2nd 1550, 1552 (Fed. Cir. 1994) quoted in MPEP 2144.08 (II))

Each of Claims 9-11 requires, in depending from Claim 1, that each of the invisible data elements has a value encoding additional information about the respective image pixel of the visible image layer and that each of the invisible data elements is individually readable to provide that additional information. In Claim 9, the additional information is a classification of a respective one of the image pixels. In Claims 10 and 11, the additional information is a difference between a respective one of the image pixels and a corresponding element in a separate image. In Claim 11, the visible image layer and the separate image comprise a stereo pair.

CLAIMS 13-16 and 34-37

Claims 13-16 and 34-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koltai as modified by Wang, as applied to claims 1 and 22, and further in view of Rhoads (US 6,252,963). The rejection stated:

> "Re claims 13-16 and 34-37: Koltai et al/Wang et al have been discussed above but fails to teach or fairly suggest that the visible image is a constrained image and the invisible information represents the difference between the constrained image and an unconstrained version of the image.
>
> "Rhoads teaches a constrained image and the invisible information represents the difference between the constrained image and an unconstrained version of the image (figs. 22-26 and 28; col. 3, lines 34-50; col. 58, line 64 through col. 63, line 22).
>
> "It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of the teachings of Rhoads into the system as taught by Koltai et al/Wang et al in order to provide Koltai et al/Wang et al with a more secure system wherein a constrained image and related information on the card/medium can be verified readily with an unconstrained version of the image (i.e., digital image taken of customer)."

Claims 13-16 and 34-37 are allowable as depending from Claims 1 and 22, respectively.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

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Enclosures: New Sheet Figure 3 (two copies)
Request for 3 Month Extension of Time
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